

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
12 May 2005 (12.05.2005)

PCT

(10) International Publication Number
WO 2005/043524 A1

(51) International Patent Classification⁷: G11B 7/24

(21) International Application Number:
PCT/IB2004/052249

(22) International Filing Date:
1 November 2004 (01.11.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
03104055.3 3 November 2003 (03.11.2003) EP

(71) Applicant (for all designated States except US): KONIN-
KLIJKE PHILIPS ELECTRONICS N.V. [NL/NL];
Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(72) Inventors; and

(75) Inventors/Applicants (for US only): VAN PIETERSON,
Liesbeth [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA
Eindhoven (NL). RIJPERS, Johannes, C., N. [NL/NL];
c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

(74) Agents: UITTENBOGAARD, Frank et al.; Prof. Holst-
laan 6, NL-5656 AA Eindhoven (NL).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

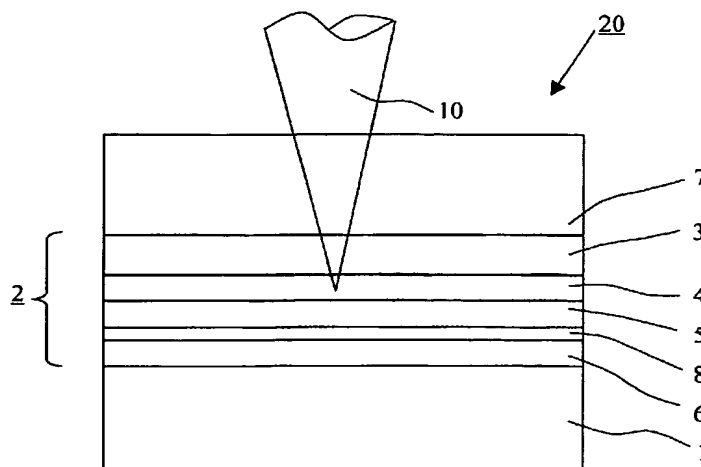
(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE,
SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— as to applicant's entitlement to apply for and be granted
a patent (Rule 4.17(ii)) for the following designations AE,
AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ,
CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE,

[Continued on next page]

(54) Title: REWRITABLE OPTICAL DATA STORAGE MEDIUM AND USE OF SUCH A MEDIUM



(57) Abstract: A rewritable optical data storage medium (20) for high-speed recording by means of a focused radiation beam is described. The medium (20) comprises a substrate (7) carrying a stack (2) of layers, which stack (2) comprises, a substantially transparent first auxiliary layer I1 (3), a substantially transparent second auxiliary layer I2 (5) having a thickness d_{12} , and a recording layer (4) of a phase-change material having a thickness d_p and comprising at least a composition $\text{Ge}_x\text{Sn}_y\text{Sb}_{1-x-y}$, where $0.05 < x < 0.30$ and $0.15 < y < 0.30$. The recording layer (4) is interposed between I1 and I2. A third auxiliary layer I3 (6) with a thickness d_{13} acting as a heat sink is being present at a side of I2 opposite to the side of the recording layer. The following formula is fulfilled $\lambda_{12}/d_{12} > 5 \cdot 10^8 \text{ W m}^{-2} \text{ K}^{-1}$, in which formula λ_{12} is the heat conduction coefficient of the material of the I2 layer. Thus an optical data storage medium is provided capable of being recorded at a relatively high linear recording speed of about 35 m/s or more.



EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU,

IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.